

CLAIMS

What is claimed is:

1. In connection with a computerized GPS navigation system of the type installed on an automotive vehicle, and having a storage subsystem for storing at least a plurality of user-selected addresses intended as an agenda to be traveled with the assistance of the GPS navigation system, and having a route-planning subsystem for assisting a vehicle user with the navigational tasks relative to traveling to such selected addresses, a computerized agenda replicator system, operable by at least a first regular user of the on-road vehicle, for transferring personal agenda information developed within such a replicator system when away from the on-road vehicle, into the vehicle's storage subsystem, the replicator system comprising:

a first computer hardware system, operable by a user to acquire and store, apart from any vehicle and any GPS navigation system, personal travel agenda information for later transfer to a storage subsystem of a GPS navigation system of an automotive vehicle for use by the navigation system, the first computer system including

a first memory operable for holding at least temporarily first and second program components;

a second memory operable for storing selected personal travel agenda information including at least first and second desired destinations;

a first visual display operable for viewing representations of at least some of the personal agenda information stored in the second memory;

at least first data entry means operable by a user of the replicator system for selectively entering into the first computer system data constituting personal travel agenda information including desired destination information;

at least first data transfer means operable for automatically transferring data constituting personal travel agenda information including desired destination information stored in the first computer system to an output portal for transfer outside of the first computer system; and

a first computer software system for controlling at least part of the first computer hardware system, the software system including

a first program component for providing a first data structure for holding within the second memory, personal travel agenda information selected by the user, the data structure being arranged to include desired destination information and to be loaded at least in part with data from the first data entry means, and

a second program component for providing, upon user command, a transfer of personal travel agenda information including first and second desired destinations from the second memory through the first data transfer means to the output portal;

whereby the first computer system is operable to transfer personal travel agenda information including at least a plurality of destinations stored therein to the storage subsystem of the vehicle-based navigation system.

2. An agenda replicator system as in Claim 1, further comprising:
 - an input portal connectable to a storage subsystem of the GPS navigation system for receiving personal travel agenda information originating from the output portal;
 - a first memory associated with the storage subsystem operable for holding at least temporarily third and fourth program components;
 - a second memory associated with the storage subsystem for storing selected personal travel agenda information including at least first and second desired destinations;
 - a third program component for providing, upon a user-initiated command, a transfer of personal agenda information including first and second desired destinations from the first computer system through the input portal; and

a fourth program component for providing a second data structure for holding within the second memory of the storage subsystem, personal agenda information transferred through the input portal, including desired destination information.

3. An agenda replicator system as in Claim 2, further comprising:
 - a second visual display, associated with the storage subsystem, and operable for viewing at least some of the personal agenda information stored in the second memory of the storage subsystem;
 - at least first selection means operable by the user for selectively pointing to portions of personal travel agenda information including desired destination information displayed on the second visual display; and
 - a fifth program component for updating information associated with desired destination information being pointed to by operation of the first means.
4. The agenda replicator system of Claim 1, wherein the first computer system includes
 - a third program component for confirming correct receipt of transferred data that constitutes the personal agenda information to the storage subsystem of the GPS navigation system.

5. The agenda replicator system of Claim 1, further comprising:
 - a third program component for transferring personal agenda information resident in the storage subsystem of the vehicle-based GPS navigation system through to an output portal of the GPS navigation system back to the first computer system.

6. The agenda replicator system of Claim 1, wherein the personal travel agenda information includes:

a plurality of desired destinations to which a user of the agenda replicator system desires to travel;

information about a sequence in which the user wishes to travel to the desired destinations, information about desired time of arrival at each desired destination; and

a plurality of personal preference selections associated with a plurality of desired destinations, the personal preference selections being selected from the group of personal preference information consisting of desired date of departure, desired time of departure, cell phone preference, scenic route preference, toll road preference and express route preference.

7. The agenda replicator system of Claim 1, further comprising;
a third program component for providing means to access an electronic calendar system through the first computer system which calendar system includes a list of planned appointments associated with a user of the replicator system,

a fourth program component for specifying appointments that are to be replicated in an agenda table for later transfer by the replicator system to the first output portal; and

a fifth program component for specifying that at least selected entries of personal travel agenda information in the agenda table stored in the first computer system are to be transferred to the first output portal.

8. The agenda replicator system of Claim 1, wherein:
the agenda table includes fields operable to be loaded with descriptors that identify desired destinations to which the user of the system desires to travel, desired times of arrival associated with each desired destination, and at least one other item of personal travel agenda information associated with desired destinations; and
the first computer system includes:

a hand-portable battery-powered portable computer with attached data entry means and an attached visual display unit, the portable computer system being selected from a group of such systems consisting of notebook computers, laptop computers and personal digital assistants;

a third program component operable to compute a dynamic time to destination based upon a plurality of factors effecting driving time selected from the group of factors including day of the week, time of the day, amount of traffic in an area to be traveled, weather-related road conditions, type of road, reported road construction and reported of traffic slow downs; and

a fourth program component forming part of the navigation system and operable for periodically updating expected time to reach a desired destination as the user is traveling to the destination, with the updates being based upon at least a plurality of factors effecting driving time selected from the group of factors including day of the week, time of the day, amount of traffic in an area to be traveled, weather-related road conditions, road type, road construction and reports of traffic-slowing incidents.

9. A method for transferring personal travel agenda information, in an automated fashion, regarding destinations and related personal route-planning user preferences from a first computer system that is distinct and physically separate from an automotive vehicle to an automotive vehicle-based computer system with GPS navigation capabilities and with route-planning capabilities, the method comprising the steps of:

- (a) providing a first computer system with a first memory for storage of personal travel agenda information to be used in an agenda table for specifying at least first and second desired destinations, sequence information relative to the destinations, and at least a first item of personal preference information associated with each desired destination;
- (b) loading into a first memory information for specifying at least first desired destination;
- (c) loading into the first memory for specifying at least a first unit of personal preference information associated with the first desired destination;

(d) checking the information loaded in steps (b) and (c) for accuracy via a display associated with the first computer system;

(e) establishing a first communications path between the first computer system and a first storage subsystem associated with a vehicle based GPS navigation system, whereby digitized information may be transferred across such communications path; and

(f) downloading into the first storage subsystem of the GPS navigation system personal agenda information that was based upon the information loaded into the first memory as part of steps (b) and (c).

10. A method for transferring personal travel agenda information as in claim 9, further comprising the step of:

(g) updating a travel agenda table in the GPS navigation system with at least part of the personal agenda information downloaded in step (f).

11. A method for transferring personal travel agenda information as in claim 10, further comprising the step of:

(g) instructing the GPS navigation system to perform route-planning for reaching the first desired destination in the information downloaded from the first computer system.

12. A method for transferring personal travel agenda information as in claim 10, in which the GPS navigation system is installed in a specific automotive vehicle, and wherein, as part of the instructing step, the GPS navigation system is advised to perform route-planning for reaching the first desired destination from the current location of the vehicle, as determined by the GPS system.

13. A method for as set forth in Claim 9, further comprising the step of:

(g) loading into a first memory information specifying at least a second unit of personal preference information associated with the first desired destination; the second unit being selected from the group of personal preference information consisting of date of departure, desired time of departure, desired time of arrival, cell phone preference, scenic route preference, toll road preference and express route preference.

14. A method for as set forth in Claim 9, further comprising the step of:

(g) viewing at least a portion of the personal agenda information downloaded from the first computer system on a display unit associated with the vehicle-based navigation system.

15. A method according to Claim 12, wherein the step of viewing includes viewing at least a first portion of a planned route between the vehicle's current location and the first destination.

16. A method according the Claim 9, further comprising the steps of:

(g) loading into a first memory information for specifying at least a second unit of personal preference information associated with the first desired destination;

(h) loading into a first memory information specifying at least second desired destination;

(i) loading into the first memory at least a first unit of personal preference information associated with the second desired destination;

(j) loading into a first memory information for specifying at least a second unit of personal preference information associated with the second desired destination; and

(k) checking the information loaded in steps (h) through (j) for accuracy via a display associated with the first computer system; and

(l) downloading into the first storage subsystem of the GPS navigation system personal agenda information that was based upon the information loaded into the first memory during steps (g) and (j), and wherein

each such second unit of information being selected from the group of personal preference information consisting of date of departure, desired time of departure, desired time of arrival, cell phone preference, scenic route preference, toll road preference and express route preference.

17. A method as in Claim 11, wherein the communications path between the first computer system and the second computer system is a wireless communications link selected from the group of wireless communications links consisting of (a) a short-range optical

connection between a first transmitter receiver associated with the first computer system and a first transmitter receiver associated with the vehicle-based GPS navigation system, (b) a wireless connection between a first RF transmitter receiver associated with the first computer system and a first RF transmitter receiver associated with the vehicle-based GPS navigation system.

18. A method as in Claim 17, wherein the wireless link is a radio frequency link selected from the group of radio frequency links consisting of short-range low-power communication links and long-range cell phone-based communication links.

19. A method as in Claim 11, wherein the first computer system is a portable battery-powered computer system that is sufficiently light in weight to be carried by hand.

20. The method of claim 9 including the step of deploying process software for transferring personal travel agenda information, in an automated fashion, regarding destinations and related personal route-planning user preferences, the deployment comprising the steps of:

installing the process software on at least one server;

identifying server addresses for users accessing the process software on the at least one server;

installing a proxy server if needed;

sending the process software to the at least one server and copying the process software to a file system of the at least one server;

sending the process software to at least a first client computer; and

executing at least the process software on the first client computer.

21. The method of claim 20 wherein the step of installing the process software further comprises:

determining if programs will reside on the at least one server when the process software is executed;

identifying the at least one server that will execute the process software; and

transferring the process software to storage for the at least one server.

22. The method of claim 20 wherein the step of sending the process software to the first client computer includes having the at least one server automatically copy the process software to the first client computer, and running an installation program at the first client computer to install the process software on the first client computer.

23. The method of claim 20 wherein the step of sending at the process software to the first client computer further comprises identifying the user and the address of the first client computer.

24. The method of claim 20 wherein the step of sending the process software to the first client computer includes sending the process software to at least one directory on the first client computer.

25. The method of claim 20 wherein the step of sending the process software to the first client computer includes sending the process software to the first client computer via e-mail.

26. The method of claim 9 including integrating process software for transferring personal travel agenda information, in an automated fashion, regarding destinations and related personal route-planning user preferences, the integration comprising the steps of:

determining if the process software will execute on at least one server;

identifying an address of the at least one server;

checking the at least one server for operating systems, applications and version numbers for validation with the process software, and identifying any missing software applications for the server that are required for integration;

updating the server with respect to any operating system and application that is not validated for the process software, and providing any of the missing software application for the server required for the integration;

identifying client addresses and checking client computers for operating systems, applications, and version numbers for validation with the process software, and identifying any software applications missing from the client computers that are required for integration;

updating the client computers with respect to any operating system and application that is not validated for the process software, and providing any missing software application for the client computers required for the integration; and

installing the process software on the client computers and the at least one server.

27. The method of claim 9 including on demand sharing of process software for transferring personal travel agenda information, in an automated fashion, regarding destinations and related personal route-planning user preferences, the on demand sharing comprising the steps of:

creating a transaction containing unique customer identification, requested service type, and service parameters;

sending the transaction to at least one main server;

querying the at least one main server about processing capacity associated with the server to help ensure availability of adequate resources for processing of the transaction; and

allocating additional processing capacity when additional capacity appears needed to process the transaction, the additional processing capacity being selected from the group of additional capacities consisting of central processing unit capacity, processor memory capacity, network bandwidth capacity, and storage capacity.

28. The method of claim 27 further comprising the step of recording a plurality of usage measurements selected from the group of usage measurements consisting of network bandwidth, processor memory, storage, and central processing unit cycles.

29. The method of claim 27 further comprising the steps of:

summing the usage measurements ;

acquiring at least one multiplicative value associated with the usage measurements and with unit costs ; and

recording any such acquired multiplicative value as an on demand charge to a requesting customer.

30. The method of claim 27 further comprising at least one of the following steps:

posting the on demand charge on a web site if requested by the requesting customer, and

sending the demand charge via e-mail to the requesting customer's e-mail address.

31. The method of claim 27 further comprising charging the on demand charge to the requesting customer's account if an account exists and if the requesting customer has selected a charge account payment method.

32. The method of claim 9 including deploying, accessing, and executing process software for transferring personal travel agenda information, in an automated fashion, regarding destinations and related personal route-planning user preferences, through a virtual private network, the method further comprising the steps of:

determining if a virtual private network is required;

checking for remote access to the virtual private network when it is required;

if the remote access does not exist, identifying a third party provider to provide secure, encrypted connections between a private network and remote users;

identifying the remote users ; and

setting up a network access server for downloading and installing client software on desktop computers for remotely accessing the virtual private network;

accessing the process software;

transporting the process software to at least one remote user's desktop computer;

and

executing the process software on the at least one remote user's desktop computer.

33. The method of claim 32 further comprising:

determining if the virtual private network has a site-to-site configuration for providing site-to-site access, and if the virtual private network is not so available, installing equipment required to establish a site-to-site configuration for the virtual private network ;

installing large scale encryption into the site-to-site virtual private network; and

accessing the process software through the site-to-site configuration with large scale encryption.

34. The method of claim 32 wherein the step of accessing the process software further comprises one of the following steps:

dialing into the network access server , and

attaching directly via a modem into the network access server, the modem being selected from the group of modems consisting of telephone dial-up modems, cable modems, DSL modems and wireless modems.

35. A computer program product, to be used in conjunction with a travel agenda replicator system for transferring personal travel agenda information, in an automated fashion, regarding destinations and related personal route-planning user preferences, the replicator system having at least one computer having at least one processing circuit, the software product comprising:

a storage medium readable by at least the one processing circuit and storing instructions for execution for by the processing circuit for performing a method comprising the steps of –

(a) providing a first computer system with a first memory for storage of personal travel agenda information to be used in an agenda table for specifying at least first and second desired destinations, sequence information relative to the destinations, and at least a first item of personal preference information associated with each desired destination;

(b) loading into a first memory information for specifying at least first desired destination;

(c) loading into the first memory for specifying at least a first unit of personal preference information associated with the first desired destination;

(d) checking the information loaded in steps (b) and (c) for accuracy via a display associated with the first computer system;

(e) establishing a first communications path between the first computer system and a first storage subsystem associated with a vehicle based GPS navigation system, whereby digitized information may be transferred across such communications path; and

(f) downloading into the first storage subsystem of the GPS navigation system personal agenda information that was based upon the information loaded into the first memory as part of steps (b) and (c).